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ABSTRACT

Both papers deal essentially with the same content. The author discusses briefly the popularity of behavior modification in the treatment of children and characterizes early behavior modification studies as: (1) overly reliant on undesirable features of the antipathetic medical model; (2) too limited in its selection of target subjects and problem behaviors; and (3) methodologically shoddy, witness incomplete data, unknown reliability, and undemonstrated validity. More recent trends in behavior modification with children are then examined. Briefly summarized, these include: training more and different kinds of people, applying a greater variety of techniques, following more relevant assessment procedures, to a broader range of children, who display more complex behaviors, and doing so in a greater range of contexts and in larger social units. In addition more sophistication and careful evaluation are being utilized. Future trends are discussed. (TL)

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New Developments in Behavior Modification with Children

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Popularity of Behavior Modification

When Dr. Donna Gelfand and I (Gelfand & Hartmann, 1968) reviewed the behavior modification literature in the mid-sixties, it was our belief that behavior modification was then in its middle infancy. It was already a popular treatment method; we included some 100 papers in our review, and our literature search was by no means exhaustive. Since then the use of behavior modification techniques has certainly increased. (Some idea of the publication explosion can be obtained from an examination of Table 1 which lists journals and monographs published in the behavior modification area since 1968.)

A question might be asked as to why behavior modification was--and is--such a popular treatment technique for children. At that time we speculated that its popularity was due to four factors: first, the comparative brevity of behavior modification treatment; second, the relative ease with which children's social environments can be controlled; third, the fact that children are often referred to treatment for relatively well-defined behaviors; and fourth, because the type of specific and detailed instructions parents receive from the behavior therapists more nearly meet the parents' initial treatment expectations than do the more general and vague directions, for example, to be demonstrative and accepting, traditionally given by children's therapists (Gelfand & Hartmann, 1968, p. 204).

Characterization of Early Behavior Modification Work

Before looking at the trends suggested by the list of recent books and journals, let's look at the older work on behavior modification and use it as a standard against which to compare more recent trends.

First of all, despite our protestations and attempts to divorce ourselves from the less desirable aspects of the medical model, our treatment was nonetheless affected by that model in at least one important respect. That is, the treatment model was a dyadic one. In many of the treatment reports reviewed, the therapist, an expert in behavior modification, treated a single child. I should add, however, that our expert therapist by no means fit the traditional role model; that is, he was often a bearded expatriote from the rat or pigeon laboratory.

Second, the patient was very often either a very young child or if older, a resident of some tightly controlled social environment, e.g., a camp, a home for retarded children, or an institution for "mentally ill" children.

Third, the problems dealt with were most often discrete, single behaviors such as bed-wetting, crying, tantrums, or perhaps classroom out-of-seat behavior.

Fourth, many of the studies were simple, but powerful demonstrations of contingency management. Treatment often involved shifting a simple consequence or reinforcer such as teacher attention from an inappropriate behavior that was to be reduced, to an appropriate, oftentimes incompatible behavior that was to be strengthened. At other times we smeared kis with M&M paste following some socially insignificant behavior, such as plunger-pulling.

And last, many of our studies were shoddy from a methodological point of view: often the data were incomplete and of unknown reliability; weak, or no demonstrations were provided of the effective change ingredient; and the procedures were inadequately described.

With this overly simple characterization of the past, let's now look into more cecent trends in behavior modification with children.

Recent Trends

Breakdown of the dyadic model. The dyadic model that I briefly mentioned as characteristic of earlier behavior modification interventions, is being supplanted by more complex consultative models. For example, the expert trains the parent, who in turn deals directly with the child.

I think there are a variety of good reasons for this change of models. Tharp and Wetzel (1969) for example, suggest that the therapist-expert is an inappropriate person for conducting behavior modification in that; (1) he does not control most of the important reinforcers that can be dispensed to the child, and (2) even if he does gain control of the child's behavior, the likelihood of generalization occurring when treatment terminates is by no means assured (p. 57); and (3) we face a shortage of professionally trained persons, and we can ill afford treatment on a one-to-one basis.

This trend toward consultative models is readily seen in the training programs that have been developed recently for instructing socialization agents, such as parents and teachers, in behavior modification techniques. Lindsley (1965) and Ulrich, Wolfe, and Bluhn (1968) for example, have developed training programs for teaching

classroom instructors to apply behavior modification principles to accelerate and decelerate children's behavior. Homme (1969) and his associates have recently published a book entitled, How to Use Contingency Contracting in Schools. Similar training programs have also been established for teaching parents to become behavior modifiers for their children (Patterson, Cob, & Ray, in press; Whaler, 1970; Garner, Lazere, Mash, & Leif, 1969; Herbert, 1970). Many of the programs for instructing parents have used Patterson and Gullion's (1968) programmed pamphlet entitled, Living with Children, discussion groups, video-tape imitation learning techniques and teaching projects in instructing parents. We are not forgetting future socializing agents either. A number of people, including Sulzer (1968) have developed programs for instructing students in education and child psychology to implement their own behavior modification programs as part of these classes. Again, these developments all employ a three step model, rather than the traditional dyadic model.

And there are some among us willing to attack the expert---future parent or teacher---child chain at an even more vulnerable link. Fred Keller (1968) in a recent article entitled, "Goodbye Teacher..." attempts to change the behavior of a group more resistant to change than most, that is, college instructors. Keller explains how operant techniques might be applied to a somewhat older group of children--college students enrolled in undergraduate psychology classes.

A still more complex model has been employed by Tharp and Wetzel (1969) in the Southern Arizona Behavior Research Project: Expert---Behavior Analyst---Parent or Teacher---Child. They are training

quasi-professionals--the behavioral analysts--who act as consultants to primary socializers, e.g., parents and teachers, in applying behavior modification to children. Tharp and Wetzel engaged a group of B.A. level personnel including an ex-football player, cocktail waitress, and an ex-stevedore, whose qualifying characteristics were intelligence, energy, flexibility, and personal attractiveness (p. 62). These people initially were put through a three-week training session in principles and techniques in behavior modification. After the training period, they began their work in the community. Although they worked under the supervision of the "experts," their service contacts were almost entirely with parents and teachers who in turn modified the children's behavior.

These programs that have been developed for use in teaching various people how to apply behavior modification principles have generated some noteworthy spin-offs. First of all, people have become explicitly aware of the importance of using good contingency management techniques for maintaining the behavior of the people who are being taught to apply behavior modification techniques (Tharp & Wetzel, 1969). Patterson et al. (in press) found, for example, that many of their successful early single case studies reverted to baseline because the contingency managers stopped applying contingencies correctly. It seemed that changes in the children's behavior were not sufficient to maintain appropriate contingency management on the part of teachers and parents. Patterson (1970) suggests, based on these results, that some broader social changes may have to be made at higher levels of organization in order to maintain parents and teachers' compliance with contingency management techniques for children under their direction. For example,

it may be necessary to pay teachers, parents and other behavioral engineers on the basis of their ability to manage their children's behavior (Patterson, 1970; Stuart, 1970).

Use of multiple interventionists. If there are perennial problems in the area of psychotherapy, certainly one of the foremost is the problem of generalization from the treatment situation to the patient's natural ecology. (This topic has been brought back into focus by the recent work of Whaler (1970), Patterson et al. (in press) and Birnbrauer (1968).) Behavior modifiers too often have not found the degree of generalization we all hoped for; but the implication of their findings are somewhat different from those usually heard. Rather than focusing on various in-treatment variables that would hopefully facilitate generalization, we now are taking the approach of working with a variety of primary socializing agents, such as parents, teachers, boy scout leaders, playground directors and policemen, to ensure that generalization occurs (Baer, Wolf & Risley, 1968). And it is more likely to occur for the very simple reason that many of the primary socializing agents in a child's life are manipulating contingencies in a consistent and appropriate manner.

Range of professionals involved. In the recent past, behavior modification techniques have been largely applied by educators and psychologists; there is now increasing use of these techniques by a broader variety of professionals. Rehabilitation therapists are increasingly applying behavior modification techniques (Meyerson, Kerr, & Michael, 1967), as are social workers, for example, Stuart (1970). (Stuart at the University of Michigan, is carrying high the banners of behavior modification in some very exciting and inventive ways

that range from examining church members' preferences for positive versus negative controlling procedures--most people prefer shock over positive techniques--and the use of telemetric techniques with delinquents to contingency contracting with adolescents.) Speech therapy--an area in which I have had some acquaintance since marrying one of the rank and file--has been inundated with a variety of books and reviews on speech therapy, behavior modification,and the experimental analysis of behavior (Brookshire, 1967; Girardeau & Spradlin, 1970; Holland, 1967; Sloane & MacAulay, 1968). Work has also been done in training nurses (Shaeffer & Martin, 1968) and probation officers (Cohen, 1968; Schwitzgebel, 1967; Lindlsey, 1970) and psychiatric residents in behavior modification techniques.

. Behavior assessment. Traditional assessment techniques, such as the Rorschach and other projective techniques as well as the APA's nosological system, are not generally useful to behavior modifiers and perhaps to more traditionally oriented therapists either. To supplant our moribund diagnostic armamentarium Kanfer and Saslow (1969) have provided us with an alternative way of classifying behavior on the basis of a functional analysis, and a number of others, including Mischel (1968) Weiss (1968), Goldfried and Pomeranz (1968), and Bijou and his associates (Bijou, et al., 1968, 1969) have given us the intellectual underpinning and new techniques to use in our assessment procedures. Frequency counts and reinforcer preferences are replacing ego strength and white space responses despite the recommendations by Greenspoon and Gerstein (1967). Even the university establishment is beginning to replace, or at least supplement introductory, intermediate

and advanced Rorschachery with Behavior Assessment for Behavior Modification (e.g., Hartmann & Kale, 1969).

Changes in the Clinical Armamentarium. Our Skinnerian heritage had resulted in almost exclusive use of reinforcement or contingency management procedures. Recent years have seen a broadening of our range of techniques.

First of all there is increasing--but very selective use of punishment procedures. The use of punishment in behavior modification had recently been reviewed by Bucher and Lovaas (1967); these authors report punishment as being a very efficient and effective technique particularly for the control of self-destructive and self-stimulatory behaviors. They report, for example, control in one-to-three days in children with longstanding problems and with no undesirable side-effects.

Second, there has been an increased emphasis on programming stimulus material--in distinction to programming reinforcers. These changes are reflected in the increased use of teaching machines and programmed instruction (e.g., Brown & L'Abate, 1969) as well as in more traditional language and imitation training procedures. Those of you who have ever been involved with teaching an autistic child to speak can appreciate the power careful programming contributes to remediating this very difficult problem.

Third, we have also become increasingly sophisticated and flexible in our selection of reinforcers. For example, the Premack principle--which states that if two behaviors have different rates, the opportunity to engage in the high rate behavior can be used to reinforce low rate behavior, a principle that most of us probably learned from our grandmothers--is

finding increasing use (Homme, 1966). Take two behaviors, say eating spinach and watching TV. If the two have different rates of occurrence when the child is free to do as he chooses--say watching TV has a higher rate--the opportunity to engage in the more frequently occurring behavior, watching TV, can be used to strengthen spinach eating. We are also making greater use of reinforcement menues (Homme, 1969), and token economies (O'Leary & Becker, 1967; Birnbruer et al., 1965), both of which allow the child to choose from a variety of reinforcers.

I might mention as an aside that while exploring token economies and these related techniques, we have discovered that we must be very careful to establish social stimuli as effective reinforcers and carefully wean children from our token systems (Kuypers, Becker & O'Leary, 1968).

Fourth, there has been a dramatic increase in the use of imitation learning or modeling techniques, both for removing undesired behavior and acquiring new behavior. This work has been stimulated largely by the work of Bandura and his collaborators (1968), Lovaas (1967) and Risley and Wolf (1967). Modeling procedures have been found to be highly efficient and powerful techniques for the treatment of undesired avoidance behaviors such as dog and snake phobias (Bandura, 1969), and should be effective with many other of the common phobic responses displayed by children, e.g., fear of water and doctors. Mischel (1968) suggests, and rightly so I believe, that canned material (video tapes, films) might be usefully prepared for the treatment of these high base rate disorders and be available for inexpensive group treatment of children who display these problem behaviors. Imitation learning procedures have also become increasingly popular in developing complex child rearing behavior in parents (e.g., Patterson, 1970; Garner,

Lazere, Mash, & Leif, 1969). And last, imitation techniques are used as an adjunct to contingency management to accelerate pro-social behaviors in children. These have been used very effectively in training a variety of linguistic skills including object naming and functional speech in autistic children as well as other pro-social behaviors, such as social skills and behaviors incompatible with delinquent behavior (see review by Spiegler, 1969).

Modification of Larger Social Units

We are also increasing the size of the social unit of our treatment interventions. Rather than dealing with the modification of a single subject's behavior, we are attempting to modify the behaviors of larger social groups. There are at least two reasons for this: groups larger than N=1 require modification, e.g., families and classrooms; and dealing with larger groups may be more efficient. The work of Patterson and his collaborators should be singled-out in this regard for their work in developing effective intervention strategies with families, and also for their fruitful integration of research and service functions. They have not only been effective in modifying inappropriate family interaction patterns, but at the same time have also generated useful data about observation methodology, the development and maintenance of inappropriate behavior in children, and the dynamics of reinforcement systems (Patterson & Reid, 1970).

If we can describe a group composed of two graduate students and eight pre-delinquent boys as a family, the work of Phillips, Wolf and their associates (1970) is relevant. These investigators are attempting to modify pre-delinquents' behavior through the careful

use of contingency contracting and token systems in a demonstration project called Achievement Place. Of course many people are modifying classroom behavior; either by using individual contingencies within a token economy system, for example, O'Leary and Becker (1967) and O'Leary, Becker, Evans and Saudargas (1969); group contingencies, e.g., the recent work of Schmidt and Ulrich (1969); or group contingencies following behavior games (Barrish, Saunders & Wolf, 1969). Behavior games simply involve competition between sections of a classroom for reinforcers, e.g., freetime. Whichever group displays less disruptive behavior is the winner. We also have people attempting to apply contingency management procedures to large segments of total institutions, for example, Cowan (1968) at the National Training School for Boys, and the work of Howard Sloane (1970) in the California Youth Authority.

Increases in Problem Complexity

An early criticism of behavior therapy was that only simple and discreet problem behaviors were dealt with. And indeed, many of the early behaviors fit that categorization, e.g., temper tantrums, crying, and toilet training. Based on the criterion of problem complexity, behavior modification certainly is coming of age. People are now dealing with complex and generalized response classes, such as imitation (Sherman, 1970)--a crucial building block for the acquisition of many higher level skills, and academic subjects including language skills (Becker, 1970; Birnbrauer et al., 1965). In addition, behavior therapists are also dealing successfully with children who exhibit multiple behavior problems. Gardner (1967) for example successfully

treated a ten year old girl who exhibited somatic complaints, tantrums, and seizures including hair pulling. Patterson and Brodsky (1965) dealt with a young boy who displayed intense and high rate aggressive behavior towards his teacher, enuresis, immature speech, and negativism. And of course, Lovaas has dealt brilliantly with a class of behaviors, that when displayed by a single child results in the diagnosis of schnizophrenia (Lovaas, 1967).

Greater Control under Less Controlling Circumstances

As I previously mentioned, much of our prior work had been with small children who spent much of their time in the presence of one or both parents or in some other highly controlled environment, e.g., pre-schools and institutions. We are now dealing with children over whom we have much less direct control. I think the best example of this kind of work is presently going on in the area of contingency contracting with teenagers. For those of you who are not familiar with contingency contracting, a contingency contract is a quasi-formal document drawn up by a behavior therapist (acting as an arbitrator) that specifies responsibilities for both the teenage target and his parents and the payoffs to be made for fulfilling the responsibilities. This very exciting work (e.g., Stewart, 1970; Tharpe & Wetzel, 1969) is bringing the behavior of a previously difficult to threat group, i.e., teenagers, under the control of behavior therapy techniques.

Increases in Methodological Sophistication

Under this general topic, I would like to mention general improvements in design, measurement, observational technology, and the use of mechanical gadgetry in behavior modification. In Gelfand's and my

earlier review of the literature, most of the studies that were published at that time were methodologically unsophisticated, poorly controlled application of behavior modification procedures. There has been a marked improvement in the methodology reported in the recent literature; this, it seems to me, is our most important recent development. For example, there has been increased use of the powerful ABA single subject design. This design has recently been elaborated in detail by Gelfand and Hartmann (1968), and Bijou and his associates (1968, 1969). The features of the design are simple: at the first stage a stable base rate of the target behavior is obtained; next the behavior is modified then returned to baseline; and finally if we are attempting to accelerate or increase a pro-social behavior, the behavior is again modified. The single subject design has the capabilities of both demonstrating change and identifying the active therapeutic change agent. Its use has certainly accelerated, but unfortunately, many studies are currently being published that do not include the major aspects of an experimental analysis.

We now also have a better elaborated and more adequate technology for data gathering and some useful, but sometimes not too surprising data. For example, Patterson and Harris (1968) have indicated that there is no question but that home observers do not fade into the walls. In fact, there are very substantial differences in the data generated when observers are present and when they are not present, an effect frequently vigorously denied by investigators using home observational techniques. (It seems that when observers are present in the home the family members tend to escape to the bathrooms.)

We are also entering into an era of saphisticated electronic apparatus for monitoring our patients, and providing previously unavailable feedback to them, for programming stimuli and for delivering reinforcers (the old golf score counter and stop watch are, if we want--and have the money--things of the past (e.g., see Schwitzgebel, 1968).

Summary and a Look into the Future

Summary. These new trends might be summarized as follows: We are training more people, and different kinds of people, to apply a greater variety of techniques--following more relevant assessment procedures--to a broader range of children, who display more complex problems, and we are doing so in a greater range of contexts--including multiple contexts--and in larger social units, and we are doing these things in a more sophisticated and carefully evaluated manner.

The future. I want to spend about two minutes elaborating on what I perceive to be future trends in behavior modification.

1. First of all I believe there will be a greater emphasis on stimulus control in behavior modification. Heretofore, our reliance has been largely on reinforcement control or contingency management. The broad topic of stimulus control, including instructions, fading and programming, has been unfortunately largely overlooked.

2. We are going to be doing more comparison studies--that is comparing behavior modification approaches with other still viable, therapeutic alternatives. This will mean that we may be employing group designs; hopefully group designs in conjunction with the powerful features of the single subject design. And we will start keeping track of other important data such as the amount of professional time required for our cases (Patterson, 1970). We will also be forced to develop some behavioral criteria that will cut across theoretical points of view.

3. I think we will have still more--many more--ethical debates. We are developing increasingly potent techniques for changing human behavior; these techniques are certain to generate ethical concerns.

4. We will make greater explicit use of self-control procedures and training in self-control rather than rely on obvious external control procedures--as has often been the case in our use of contingency management techniques. The child will be instructed to manage his own contingencies or consequences rather than being managed by consequences dispensed by primary socializing agents.

5. I think we will increasingly explore conceptual models other than those based on learning theories generated by animal experimentation; for example, cognitive and feedback models. And we will continue to correct mistaken generalizations inherited from our colleagues involved in animal research. It may seem strange, but it took us quite a few years to bring verbal instructions into our clinical repertoire (see Goldstein, et al., 1966). It seems that we overgeneralized from the reports by our animal experimental brethren that talking to pigeons was futile.

6. We will make greater use of peers, college students, and other paraprofessional and volunteer workers in modifying the behavior of children (Surratt, Ulrich, & Hawkins, 1969).

7. We will explore a wide variety of techniques and procedures to increase generalizations of behavior change.

8. My last point is perhaps the most important, I think we will begin to see the implementation of community-wide programs as described by Patterson (1969) and an increasing emphasis on prevention as well as treatment.

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Leaving the 60's: Behavior Modification with Children

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Leaving the 60's: Behavior Modification with Children

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I have had a number of occasions in the past year to speak about recent trends in behavior modification with children. I usually begin my remarks by referring to a 1968 Psychological Bulletin article written by Donna Gelfand and myself; this article reviewed the literature on behavior modification with children during the early and mid-60's. After this credential-setting introduction, I recite a list of books, journals, symposium reports, workshops--and what have you--to indicate that my remarks are not to be interpreted as a funeral oration, but rather as an overview of an exciting, growing area in psychology. Then after a few brief comments which are meant to typify the older work in the field--for example, the treatment was typically conducted by expert-therapist with the young child who displayed a discreet, single problem behavior; that the methodology of the studies was often shoddy; and that much of the work involved simple contingency management--I went on to describe my assessment of the trends in behavior modification with children that typified the later 60's.

Today, I will spare you these preliminaries and get directly into the trends that typify the late 60's.

I. There has been a breakdown of that holdover from the medical model, the therapist-expert/child context of treatment. Instead, we have come to realize that the expert-therapist might be the least desirable interventionist, and so we have developed complex consultative models employing a behavior analyst or behavior specialist.

II. We have come to use multiple rather than single interventionists in our work with children; for example, in the treatment of a single child we might include the parents, teachers, peers, sibs and even the neighborhood

cop in our therapeutic intervention.

III. We are training a far greater range of professionals who employ behavior modification techniques, e.g., speech therapists, nurses, rehabilitation counselors and of course, teachers.

IV. We have rejected traditional assessment strategies and techniques, and have instead rediscovered and are testing and improving the naturalistic assessment strategies used, for example, in the 40's by Barker and his associates.

V. Our clinical armamentarian has been both broadened and become more sophisticated. Instead of being mere "M & M" smearers, we are using more sophisticated contingency management techniques including contingency contracting and token systems. We are increasingly emphasing programing and programing techniques, including modeling. We have not only rediscovered punishment and begun to research it, but have even recommended it on occasion.

VI. We are more willing to tackle social units larger than the single child; for example, we now treat families, classes, and even cities. Perhaps tomorrow the world!

VII. We are now treating more complex, multifacetted problem-disordered children, rather than single discreet problems typical of an earlier era in behavior modification work with children.

VIII. We are attempting treatment in less highly controlled situations. Whereas in the past much of our work was conducted in pre-schools and other total institutions, we are now treating children--and older children I might add--in homes as well as in an out-patient context.

IX. And last, we are performing our work with an increase in methodological sophistication. We are now using better experimental designs (particularly within subject designs), more electromechanical gadgetry, and generally better data gathering techniques.

To summarize: we are training more people, and different kinds of people, to apply a greater variety of techniques--following more relevant assessment procedures--to a broader range of children, who display more complex problems, and we are doing so in a greater range of context--including multiple context--and in larger social units, and we are doing these things in a more sophisticated and carefully evaluated manner.